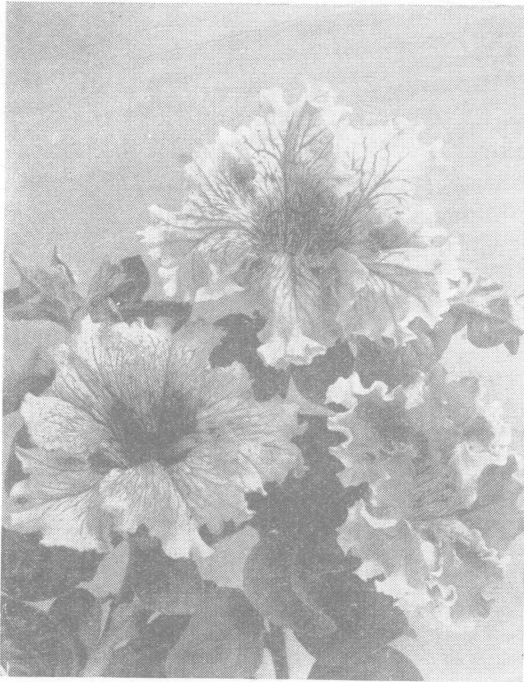


Bulletin 101
of the
Agricultural Extension Service, The Ohio State University

Annual Flowers



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ANNUAL garden flowers are a necessity in the well planned garden for they offer many advantages not found in the perennial and biennial flowers. They are easily grown from seed, they produce effects the same season, and as a rule are less demanding in their requirements of growth. Being so easily grown from seed, they give a greater amount of effect for a small expenditure than any other type of flower.

The term "annual flowers" is an extremely elastic one. We apply it to those plants of which the seed is sown in the spring, and blossoms produced the same season, the plants being killed when cold weather arrives. We also include in this group tender perennials such as the snapdragon and the pansy which, although they often live over, never amount to much the second year.

There are many interesting ways in which annual flowers may be used. This bulletin offers plans for various sized beds and suggestions for group plantings.

ANNUAL FLOWER BEDS

There are many cases where a bed or a group of beds may be planted entirely with annual flowers. The advantages of this are that the gardener may prepare the bed in the spring, sow the seed, and have complete results within a relatively short period of time. This is especially advantageous to those who have recently moved into a new home and desire quick results, as well as for those who are living in rented houses and do not wish to plant something more permanent. These beds may be located as a border in front of any existing shrub plantings, around the foundation of the house, or along the drive; very often they work in nicely as a dividing line between the vegetable garden and the lawn. By the use of self-sowing varieties this bed will come up each year.

MIXED FLOWER BEDS

For the greatest floral effect in the garden it is highly advantageous to use a mixture of annuals and perennials. These mixed flower beds may be used anywhere that any other flower bed may be used, and have the additional advantage (provided the proper variety of flowers has been used), of giving continuous bloom from early spring until late fall.

In choosing annuals for a mixed bed, care must be taken not to use the more vigorous growing ones, such as zinnias and cosmos,

too close to some of the less vigorous perennials. It is hardly fair, for instance, to smother some beautiful delphiniums in the midst of a mass of cosmos, or crowd some of the finer varieties of iris with some of the more vigorous growing varieties of zinnias. Gaps in the perennial border left by winter killing may be filled with annuals until other perennial plants are available. Annuals may be planted in the bulb garden for summer effects.

ANNUALS AMONG SHRUBS

Annual flowers have two distinct uses in connection with the shrub borders. For the first year or two after the shrubs have been planted there will usually be a considerable space between them which may be planted very advantageously with many of the annual flowers. Growing flowers in this way will serve not only to fill in the vacant spaces but the care and cultivation given the flowers will benefit the shrubs. Care should be used not to smother the shrubs with the rankest sort of annuals, like castor-beans.

After the shrub plantings are established, little patches of annuals may be scattered along in front of them as occasional spots of color. These may be composed of a single kind of flower or a mixture of several kinds.

ANNUALS FOR CUT FLOWERS

When flowers are desired solely for cutting, the best place to grow them is in rows in the vegetable or cutting garden, where they may be cultivated with ease and given sufficient growing space.

ANNUALS FOR ROCK GARDEN

If perennial plants are not available, newly developed rock gardens may be very attractively planted with some of the daintier and less vigorous annuals (page 12).

Many gardeners will not agree with this suggestion, since they feel that only the true alpine plants should be used in a rock garden. On the other hand, many beginners would do well to use the more hardy and vigorous rock plants with which the annuals suggested will blend nicely and produce summer and fall blooms.

NATURALIZING ANNUAL FLOWERS

Around many of our homes we have occasional patches which we do not wish to keep cultivated, yet at the same time require some form of planting. Spots such as these may often be used to naturalize annual flowers, using those forms which easily self-seed themselves from year to year. Some of the better forms for this

use are the small flowered petunia, the calliopsis, the cornflower, the spiderplant, and the pricklepoppy. See page 8.

SELECTION OF THE SITE FOR ANNUAL FLOWERS

The enjoyment of our flowers will be gauged to a large extent by the way in which the beds are placed around the yard. Most of the annuals prefer full sunlight, and if a site is selected with this in mind, the flowers will grow better, although there are a few found in the list on page 7, which stand partial shade.

Garden Design—In our desire to have flowers we should not interfere with the proper design and layout of our yards and gardens. In general, the lawn should be kept open, with the flower beds around the borders, in many cases using the shrubs as a background. We may also place our flower beds very advantageously around the foundation of the house. It is a highly doubtful practice to line all of the various walks from the street to the house and the house to the garage, with narrow beds on either side.

Suggestions for Planting Shady Spots.—Large trees being heavy feeders both of food and moisture, will be found to interfere seriously with the growth of flowers beneath them. This is another reason for planting the flowers away from the trees and preferably in full sunlight.

The north side of the house and the area beneath the trees, however, should never be left bare, but may be used (according to the degree of shade) for those annuals which naturally grow in some shade or at least are tolerant of it.

PREPARING THE SEEDBED

Although the seedbed may be prepared by spading and thoroughly pulverizing any small 2 by 3-foot plot of ground, it may often pay to dig out a place near the house and fill in with 4 to 6 inches of finely pulverized loam which is relatively free from weed seeds. (Very weedy soil may have top inch put in hot oven—hot enough to boil water—for one hour. This will kill the weed seeds.)

Sand and peat moss or soil and peat moss in equal parts make an excellent seedbed.

Fertilizer is not necessary in the seedbed, as the seedlings are removed as soon as possible. Before sowing seed, label each row, using a wooden label and pencil. Sow the seeds $\frac{1}{8}$ to $\frac{1}{4}$ inch below surface in rows 2 to 3 inches apart. Sow very fine seeds, like petunia and snapdragon, shallow; coarser seeds are sown deeper. The seeds should barely touch each other in the row. Cover with

fine soil, sand, or peat moss, press the seed in lightly after sowing and, if peat moss has not been used cover surface of soil with paper, cloth, or burlap until first seedlings appear; this will be in from 5 to 10 days. The burlap or other covering is to keep the ground from drying out; if peat moss is used, no other covering is necessary.

The whole bed may be enclosed in a low box and the burlap stretched over the top. Be sure to remove it as soon as the seedlings start to come up.

Poppies, mignonette and California poppies do not transplant easily and are best sown where they are to bloom, or sown in small pots (see list on page 8).



A simple annual flower garden, with groupings of Asters and Petunias, one variety to a bed. Some gardeners prefer a mixture of varieties.

PREPARING THE PERMANENT BEDS

Unless the soil in your yard is unusually good, both in regard to its physical condition and its fertility, it will pay to make specially prepared beds. In sections of the state where a heavy clay soil predominates, better growth will be obtained if this clay has been thoroughly loosened and had a liberal amount of organic matter incorporated with it. A 2-inch layer of peat moss, rotted manure, or leaf mold may be used for this purpose.

An even better way is to dig a hole 30 inches deep and either fill it up with alternate layers of soil and manure, or, better still, thoroughly mix the soil and the organic matter (manure, peat moss, or leaves) and fill in the hole with the mixture.

If the site for the flower bed is low and poorly drained it will pay to install a 3- or 4-inch tile in the bottom to carry away the excess water.

FERTILIZATION OF BEDS

When manure has not been used in the preparation of the bed, apply some form of chemical fertilizer. For the average garden, since we do not know the exact requirements of the large variety of garden flowers we use, a complete chemical fertilizer is the surest. This may have a formula similar to 10-6-4, 6-8-6, or 4-12-4, and may be applied at the rate of two to three pounds per 100 square feet of ground surface.

The fertilizer may be incorporated with the upper 6 inches of the soil a few days before planting, or may be applied and raked in after the plants are planted.

SPRING SEED SOWING

Annual flowers may be started at several different times during the year. The seed may be sown in the house or greenhouse during late February or early March. Practically all annuals may be sown in the glass covered cold frame or hotbed during early March, but only the hardiest may be sown out of doors in the open ground this early.

Tender annuals should not be sown in the open ground until weather has settled; this will usually be the middle of April. Second sowings of short-lived annuals such as those on page 8 may be made at regular intervals until June 15. All annuals may be sown outdoors April and May.

FALL SOWING

Practically all of the hardier forms of annuals may be sown either in the open ground or, better still, in the cold frame during November or even during the winter months, provided they can be sown in unfrozen ground (see page 10).

TRANSPLANTING

After the seedlings are 1 or 2 inches high, transplant them to their permanent places in the garden. Even though they are

very small, set them the distance apart recommended for each kind. To transplant seedlings, make a hole with a small stick, or dibble, insert the seedling the same depth that it was before and insert the stick at an angle about $1\frac{1}{2}$ inches away from first hole (diagram, page 11). This pushes soil against the roots, whereas if dibble is pushed in very close to the first hole it closes the top, but leaves an air hole below, allowing the roots to dry out. Tall, leggy seedlings may be set deeper than their original position in the seedbed.

Keep your unplanted seedlings shaded and covered, while planting. It takes very little to dry them out and kill them. Water immediately after planting and if sun is shining shade with a tin can, paper cone, or even a piece of shingle until sun goes down. Transplanting is best done on dull, cloudy days. Immediately replace any plants that die.

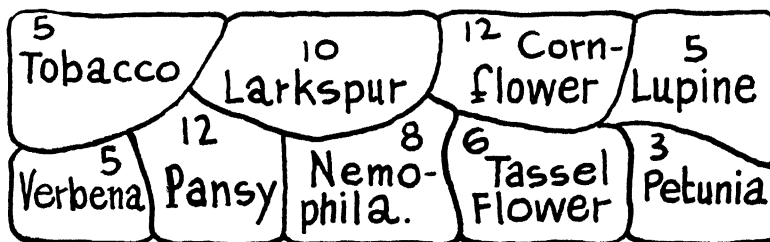
DISEASE AND PEST CONTROL

Although in general the annual flowers do not have as many troublesome diseases and insect pests as do perennials, there are a few outstanding forms that it will be well to keep in mind. These are aster blight, aster yellows, and snapdragon rust. In addition to these the usual pests like plant lice, root lice, ants, blister beetles, tarnish plant bug, stalk borer, and red spider may often cause trouble. The control of these is discussed in Bulletin 76, "Control of Garden Insects and Diseases," published by the Agricultural Extension Service of the Ohio State University.

Annuals for Special Situations

ANNUALS THAT WILL GROW IN PARTIAL SHADE

Candytuft	Lupine	Tobacco
Cornflower	Nemophila	Sweet Alyssum
Clarkia	Pansy	Verbena
Godetia	Petunia	Zinnia
Larkspur	Tasselflower	



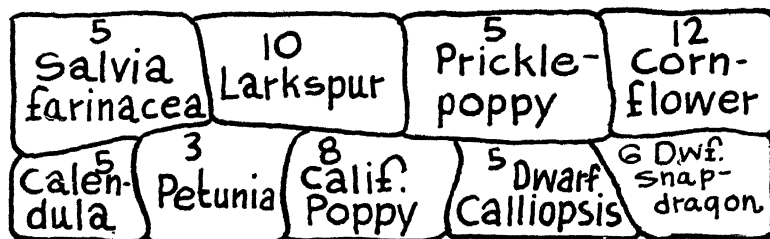
Suggested plan for flower bed in partial shade (Figures refer to number of plants needed)

VARIETIES OF WHICH SEVERAL SOWINGS SHOULD BE MADE FOR SUCCESSION OF BLOOM

Calliopsis
Candytuft
Cape-marigold

Forget-me-not
Gypsophila
Cornflower

Love-in-a-mist
Mignonette
Poppy



A self-sown flower bed .

VARIETIES WHICH OFTEN SELF-SOW

Ageratum
Amaranthus
Balsam
Browallia
Calendula
California Poppy
Calliopsis
Clarkia
Cornflower
Cosmos
Four-o'clock

Godetia
Gypsophila
Larkspur
Marigold
Morning-glory
Perilla
Petunia
Poppy
Portulaca
Pricklepoppy

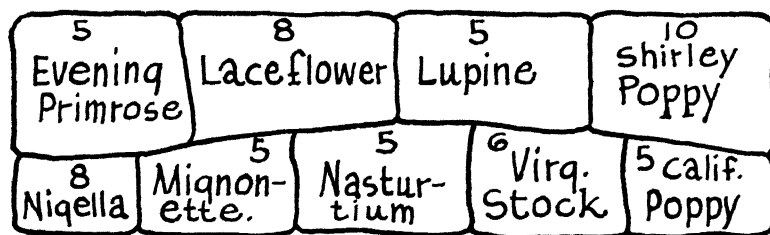
Salvia farinacea
Snapdragon
Snow-on-the-mountain
Spiderflower
Summer-cypress
Sweet Alyssum
Tobacco
Wild Cucumber
Zinnia
Sunflower

ANNUALS DIFFICULT TO TRANSPLANT

California Poppy
Evening Primrose
Godetia
Gypsophila
Laceflower
Larkspur

Love-in-a-mist
Lupine
Mignonette
Nasturtium
Poppy
Portulaca

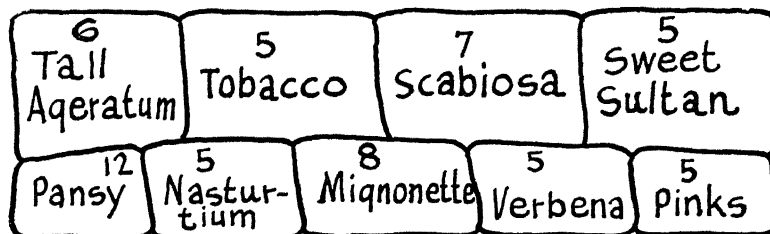
Scarlet Runner Bean
Sweet Pea
Treemallow
Virginia Stock



Bed of annuals best sown where they are to bloom

FRAGRANT ANNUALS

Ageratum	Pinks	Stocks
Heliotrope	Phlox	Tobacco
Mignonette	Scabiosa	Verbena
Nasturtium	Sweet Peas	Virginia Stocks
Pansy	Sweet Sultan	



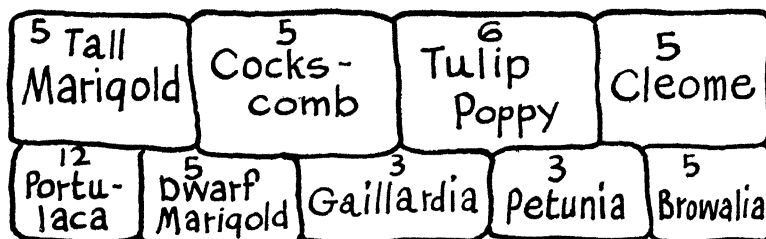
A bed of fragrant annuals, 8 by 10 feet

DWARF OR LOW GROWING ANNUALS

Ageratum	Marigold, dwarf French,	Portulaca
Calliopsis (dwarf)	and Mexican	Sanvitalia
Candytuft	Nasturtium	Snapdragon, dwarf
Flax	Nemophila	Swan-River-Daisy
Gypsophila	Pansy	Sweet Alyssum
Lobelia	Petunia	Verbena
	Phlox	

ANNUALS THAT WILL GROW IN POOR SOIL

Amaranthus	Calliopsis	Poppy
Balsam	Gaillardia	Portulaca
Bartonia	Marigold	Spider-flower
Browallia	Nasturtium	Sweet Sultan
California Poppy	Perilla	Summer-cypress
Cockscomb	Petunia	



A bed of annuals that will grow in poor soil

FLOWERS FOR FOLIAGE EFFECTS

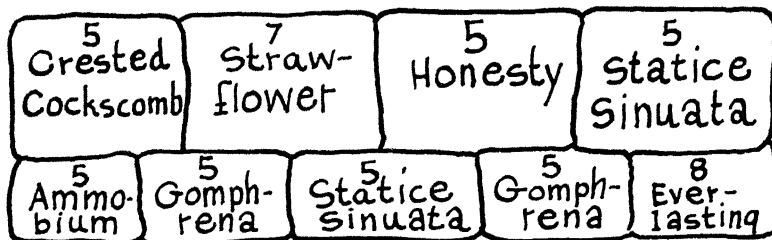
Amaranthus	Perilla	Summer-cypress
Castor-bean	Pricklepoppy	Summer-fir
Grasses	Snow-on-the-mountain	

TENDER ANNUALS TO BE SOWN OUTDOORS DURING MAY—EARLIER INDOORS

Canary Vine
Laceflower
Gourd
Mignonette

Mimulus
Nemophila
Scarlet Runner Bean
Cobea

Salpiglossis
Tasselflower
Lobelia
China Aster



A bed of everlasting flowers, for winter bouquets

FLOWERS FOR WINTER BOUQUETS

Cockscomb

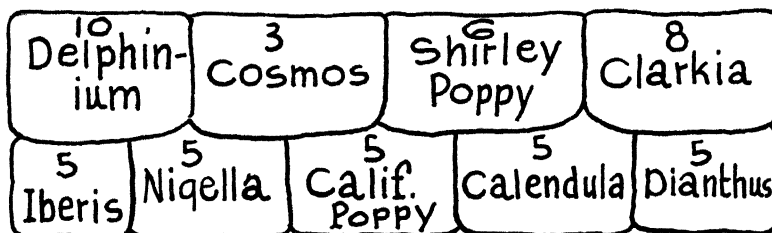
Globe Amaranth

Strawflower

Everlasting (Acrolinum,
Rhodanthe)

Grasses
Honesty

Thrift
Winged Everlasting

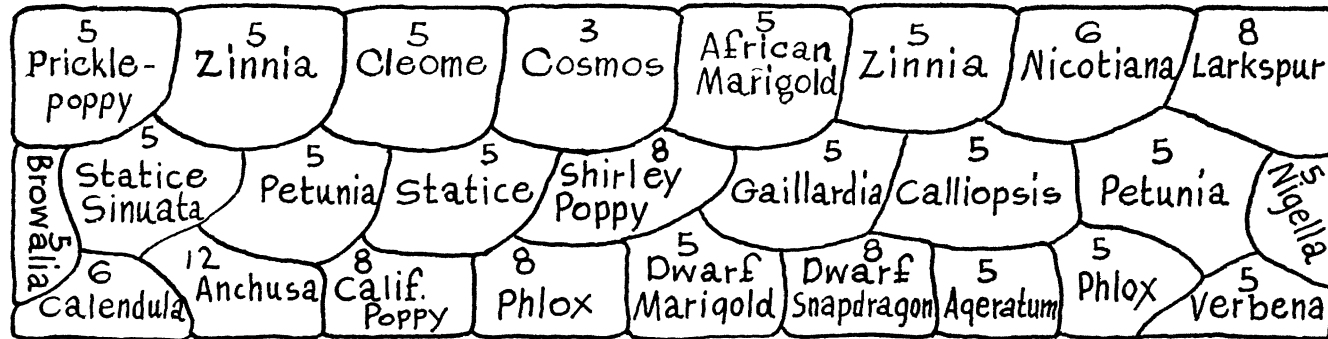


A bed which may be fall sown

FALL SOWN ANNUALS

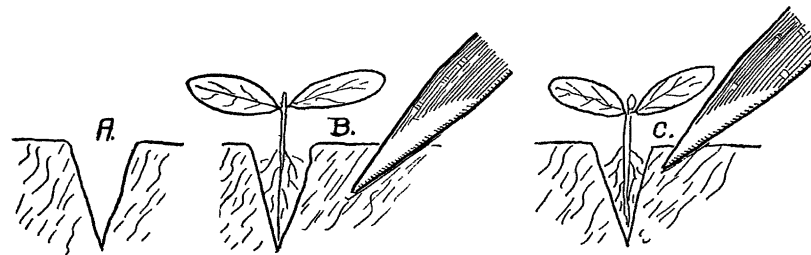
Alyssum
Antirrhinum
Calendula
Cornflower
Clarkia
Coreopsis tinctoria
Cosmos, early flowered
Delphinium
Dianthus
Eschscholtzia
Gypsophila elegans

Iberis (Candytuft)
Lathyrus (Sweet Pea)
Malcomia (Virginia Stock)
Nigella (Love-in-a-Mist)
Papaver (Opium and Shirley Poppies)
Saponaria vaccaria (Cow-Herb)
Schizanthus (Butterfly-Flower)
Trachymene (Blue Laceflower)
Viola (Pansy)



Annual flower border, 5 by 20 feet. (Figures indicate the number of plants to use.)

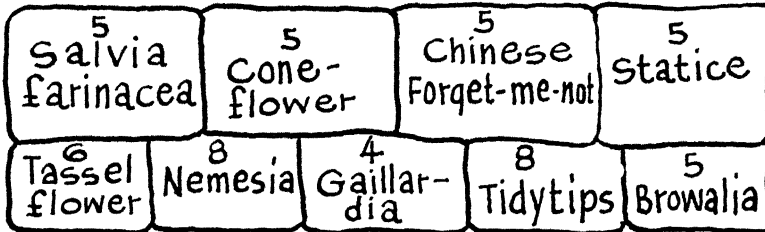
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Transplanting the seedlings: A shows hole made with the dibble large enough to hold all the roots; B. place seedling in hole, then insert the dibble in soil $1\frac{1}{2}$ inches away (this fills up the entire hole, leaving no air space); C, if dibble is inserted too close to seedling, as shown above, it closes the top of the hole but leaves an air pocket below which tends to dry out the roots.

TALL ANNUALS FOR BACKGROUND EFFECT

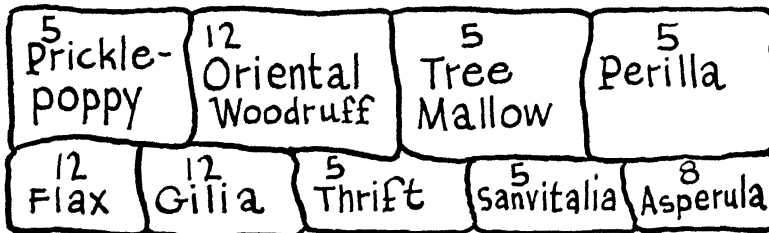
Amaranthus	Marigold, tall African	Sunflower
Calliopsis, tall variety	Princesplume	Summer Fir
Cosmos	Scarlet Sage	Tobacco
Larkspur, tall	Spiderflower	Zinnia



A bed of annuals not commonly grown, but well worth trying

LESS COMMON ANNUALS WORTH TRYING

Annual Chrysanthemum	Gilia	Morning-glory
Bartonia	Gaillardia	Sanvitalia
Browallia	Nemesia	Tasselflower
Chinese Forget-me-not	Nemophila	Thrift
Cape Bugloss	Nierembergia	Tidy tips
Cupflower	Phacelia	Treemallow
Pinewoods Coneflower	Perilla	Oriental Woodruff
Crowndaisy	Pricklepoppy	Tuber Verbena
Flax	Mealy cup sage	Moss Vervain (Verbena)



Another bed of less common annuals

ANNUAL FLOWERS FOR THE ROCK GARDEN

Ageratum	Nemophila	Tagetes signata pumila
Alyssum	Phlox	Thunbergia
Brachycome	Sanvitalia	Verbena
Collinsia	Tasselflower	Zinnia mexicana
Gilia		

ANNUALS FOR CUT FLOWERS

Annual Chrysanthemum	Laceflower	Salvia farinacea
Ageratum	Larkspur	Scabiosa
Browallia	Lupine	Snapdragon
Butterflyflower	Marigold	Stocks
Calendula	Matricaria	Sunflower
China Aster	Mignonette	Sweet Pea
Cape Marigold	Nasturtium	Sweet Sultan
Cosmos	Nemesia	Thrift
Calliopsis	Pinks	Treemallow
Crown-daisy	Phlox	Verbena
Gaillardia	Poppy	Zinnia
Gypsophila	Salpiglossis	

ANNUALS FOR HOT DRY PLACES

California Poppy	Morning-glory (dwarf)	Portulaca
Calliopsis	Phlox	Sensitive Plant

ANNUALS TO BE SOWN EARLY

(Indoors if possible)

Antirrhinum	Ricinus (Castor-bean)
Dianthus (Annual Carnation)	Salvia (Scarlet Sage)
Lobelia erinus	Salvia farinacea
Pennisetum	Scabiosa
Perilla	Vinca rosea

INTERESTING GROUPINGS OF ANNUALS

Ageratum and Calendula
 Tasselflower and Browallia
 Spiderflower and Tobacco
 Gaillardia, Petunia, and Verbena
 Mexican Zinnia and Ageratum
 Pricklepoppy, French Marigolds, and Cape Bugloss
 Calendula and Mealycup Sage
 Cape Bugloss and Striped Marigold
 California Poppy, Cornflower, and French Marigolds
 Nemesia, Stocks and Ageratum
 Gypsophila, Cape-marigold, and Browallia
 Snapdragon, Phlox, and Spiderflower
 Cosmos, Spiderflower, and Giant Zinnia
 Pricklepoppy, Perilla, and Tobacco
 Clarkia, Browallia, and Mignonette
 Perilla, Snow-on-the-mountain, and Summer-cypress
 Tasselflower and Ageratum
 Pinewoods Coneflower, Gaillardia, and Gypsophila
 Gilia, Striped Marigold, and Chinese Forget-me-not
 Chinese Forget-me-not and Calendula
 Forget-me-nots and Gypsophila
 Flax and Ageratum
 Salpiglossis, French Marigolds
 Thrift, Oriental Woodruff, and Calliopsis

LIST OF ANNUAL FLOWERS

Accepted scientific name is in italics, unaccepted name in parentheses

Symbols: H.—Height of plant. P.D.—Planting distance.

ACROLINIUM. See Helipterum.

AGERATUM. *A. houstonianum* (mexicanum) H.—6 to 24" P.D.—8 to 12"

A charming, constant bloomer, essential in every garden. The dwarf and compact forms are generally preferred to the tall ones. The blue-violet color combines with practically any other garden color, but the white varieties are not as decorative. Start seed early indoors. It will sometimes self-sow.

AGROSTIS. See Grasses.

ALYSSUM. See Sweet Alyssum.

AMARANTHUS. *Amaranthus*. H.—3 to 5' P.D.—2'

A coarse group of plants, related to cockscomb and pigweed, some with colored foliage, others with long red spikes of flowers. They should be used sparingly, if at all, and then only with the coarser annuals and shrubs. They will stand the hottest and driest locations.

AMMOBIUM. See Winged Everlasting.

ANCHUSA. See Cape Bugloss.

ANTIRRHINUM. See Snapdragon.

ARCTOTIS. *Arctotis grandis*—Blue Eyed African Daisy.

H.—24" P.D.—8 to 12"

A day-time bloomer, closing at night, white flowers, lilac blue outside, effective gray-green foliage. Easily grown in the borders. Good for cutting.

ARGEMONE. See Pricklepoppy.

ARTEMESIA. See Summer Fir.

ASPERULA. See Woodruff.

BABYSBREATH. See Gypsophila.

BALSAM. *Impatiens balsamina*. H.—18" P.D.—12"

An old-fashioned favorite but with flowers too much hidden by the leaves to be really effective. Rather formal, compact form of growth; sensitive to frost, will usually be grown more through association than desire for the flowers. It will often self-sow.

BARTONIA.—*Mentzelia aurea*. (Bartonia) H.—12" P.D.—8 to 12"

An interesting but little grown plant with grayish foliage and gorgeous golden flowers. Sow the seed where it is to bloom.

BLISTERCRESS (Annual Wallflower). *Erysimum perofskianum*.

H.—12 to 15" P.D.—8"

A really delightful flower resembling an orange wallflower. Although blooming best in cool weather it is worthy of trial. It will often self-sow and even naturalize.

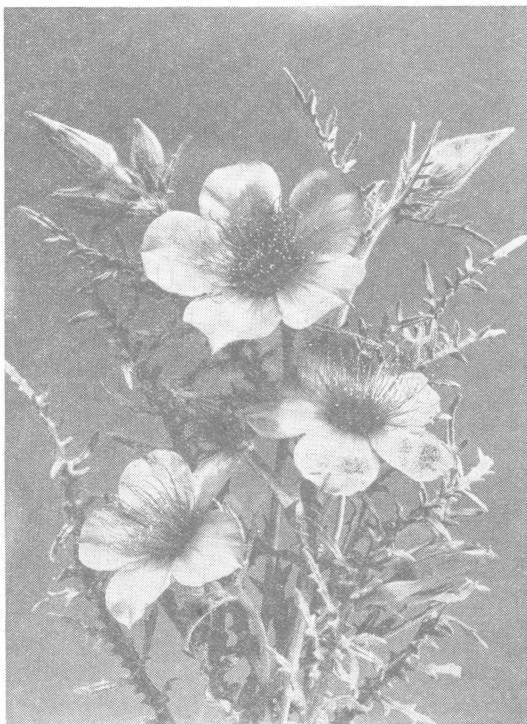
BRACHYCOME. See Swan-River-Daisy.

BRIZA. See Grasses.

BROMUS. See Grasses.

BARTONIA

There is no question but that many of our annual flowers are not grown merely because they are relatively little known. The *Bartonia* gives us an opportunity to develop our own individuality in our gardens.



BROWALLIA. *Browallia*.

H.—12" P.D.—12"

Effective and free blooming, it makes an excellent filler among tulips, where if winter mulched it will often self-sow. The flowers are good for cutting as well as garden effect. Both *B. speciosa* and *B. demissa* (*alata*) should be grown. Potted up in fall they will bloom during winter.

BUTTERFLYFLOWER. *Schizanthus pinnatus*.

H.—2 to 3' P.D.—15 to 18"

Although commonly grown as a greenhouse plant, it is worthy of garden culture. It will appreciate just a little shade from the intense sun and several pinchings back to make it more bushy. Foliage attractive, flowers interesting.

CACALIA. See Tasselflower.

CAPE BUGLOSS. *Anchusa capensis*.

H.—12" P.D.—6 to 8"

It is surprising that this gorgeous blue flower is not grown more extensively. A constant bloomer under all conditions, it supplies the clear blue given only by the forget-me-not and Chinese forget-me-not. It will often self-sow.

CALIFORNIA POPPY. *Eschscholtzia californica*.

H.—8" P.D.—8 to 12"

This favorite hardly needs introduction, with its colors of brilliant yellow, white, pink, and red, with the intricate pattern of its grayish-green foliage, and its constant bloom from June until frost. Difficult to transplant; should be sown in place. It can always be relied upon.

CALENDULA.—*Calendula officinalis*.

H.—12" P.D.—8 to 12"

No garden is complete without calendulas. Hardy, free blooming, and decorative; best used in solid colors. Although the Orange King is excellent,

the Yellow Ball and Orange Ball are better. Calendulas make excellent combinations with blues and lavenders. For profuse mid-summer bloom, plant a few in partial shade.

CALLIOPSIS. *Coreopsis* H.—16 to 36" P.D.—8 to 12"

The calliopsis in its several forms is an asset to any garden. Its one handicap is its profuse blooming and abundance of seed; unless the old flowers are removed it will soon spend its energy and cease blooming. This is especially true during hot weather.

Reds, crimsons, browns, rich yellows, are the colors found in the many varieties of annual coreopsis.

The dwarf forms are useful for borders and mass effects, whereas the taller forms are better for cutting as well as garden effect.

Goldenwave (*C. drummondii*) has large yellow flowers with mahogany around center. H.—18 to 24"

Crown Coreopsis (*C. coronata*) has pure yellow flowers. H.—24"

The several dwarf forms (including *C. radiata*) Quill coreopsis are delightful. H.—4 to 8"

CALLISTEPHUS. See China aster.

CANDYTUFT. *Iberis*. H.—6 to 12" P.D.—8"

An old favorite, worthy of greater recognition today.. *Iberis umbellata*, with its rather flat heads of flowers, comes in beautiful colors, but *I. amara*, the rocket and hyacinth flowered candytuft, with its long spikes of flowers, is more showy. They are all fragrant and profuse blooming. Several sowings should be made for later bloom.

CAPE-MARIGOLD. *Dimorphotheca aurantiaca*. H.—8 to 12" P.D.—8"

Often listed as African Daisy. Although coming in colors from white to salmon, the orange is most interesting. Excellent for cutting and garden effects. Several sowings should be made.

CASTOR-BEAN. *Ricinus communis*. H.—4 to 8' P.D.—3 to 5'

This is the most vigorous of all annuals which one will be likely to grow, giving a coarse, luxuriant, even rank growth, which soon crowds out all other flowers. It is best used as a shrub. Caution is necessary in regard to the seeds, since they contain a very active poison. It is claimed that a few contain a fatal dose.

CELOSIA. See Cockscomb.

CENTAUREA. See Cornflower.

CHINA-ASTER. *Callistephus chinensis*. H.—12 to 36" P.D.—8 to 12"

At one time the china aster was one of our most important annual flowers. Today the aster yellows and the aster blight often make it difficult and sometimes impossible to grow it successfully.

The aster blight (wilt) is controlled only by growing the plants on new soil and selecting seed from disease resistant plants. The aster yellows may be controlled by regular applications of Bordeaux mixture to repel the leaf hopper which transfers the disease from perennial weeds. The tarnished-plant-bug and blister-beetle may be controlled by spraying with one of the pyrethrum extract sprays. All badly diseased plants should be burned.

Asters will do best in good rich soil, where they may be given liberal cultivation and plenty of space to grow. In many cases a partial shade may be beneficial.

The China aster has been developed into many interesting types, among which are early flowering, such as Queen of the Market and the Royal; and later flowering, such as Comet, King, Late Branching and Crego.

Aster seeds should be sown in the early spring and kept growing.

CHINESE-FORGET-ME-NOT. *Cynoglossum amabile* H.—2' P.D.—15"

A glorified blue forget-me-not which should be in every garden. Keep the old flowers removed or production of seed will stop blooming. Even then the plants may be cut back and will produce a crop of flowers in September. Plants will self-seed although seeds are a nuisance on the plants, being of a stick-tight type.

CLARKIA. *Clarkia elegans* and *C. pulchella*. H.—2' P.D.—8"

An old fashioned annual which is worthy of the attention it receives. The colors run from white through the pinks to deep rose, in single and double flowers. It is free blooming and makes an excellent cut flower. The seed may be sown in the fall or spring.

CLEOME. See Spiderflower.

COCKSCOMB. *Celosia*.

One of the gaudiest of all annuals. The common cockscomb (*Celosia cristata*) is rather coarse and of doubtful beauty.

Feather cockscomb (*C. plumosa*) is rather decorative with its pink, yellow, and red flower masses. But even this variety should be used sparingly. Flowers may be dried for winter bouquets. It will sometimes self sow.

COLLINSIA. *Collinsia*. H.—6 to 8" P.D.—6"

A native western plant, preferring cool weather and a well drained soil. It will generally require special care to last through our hot, dry summers but it is charming when well grown.

CONEFLOWER. (Pinewoods Coneflower) *Rudbeckia bicolor*. H.—2' P.D.—12"

Resembling our wild black-eyed susan except that it often has mahogany in with the orange color; it is surprising that it is not grown more often. A constant bloomer, an excellent cut flower, and an interesting garden subject.

COIX. See Grasses. Job's tears.

CORNFLOWER.—*Centaurea cyanus*. H.—18 to 24" P.D.—6 to 8"

This flower is available in a variety of colors from white to lavender through to purple and blue and pink; the pink and the blue, however, usually are preferred. Easily grown, absolutely hardy, always self sowing, it produces a wealth of flowers which are enjoyed by ourselves as well as by the goldfinches. Add another attraction in color effect. There is a dwarf form available but seldom grown. Always fall-sow a few for early bloom.

COREOPSIS.—See Calliopsis.

COSMOS. *Cosmos bipinnatus*. H.—4 to 6' P.D.—2'

Many disappointments with cosmos are due to the use of the late blooming type rather than the early types. Only the early blooming can be depended upon to give any amount of bloom before frost. In addition to the standard single form the double or crested type is worth growing. In most parts of Ohio, late types are valuable for foliage effects alone. Cosmos prefers plenty of room to grow. It may be planted in among the shrubs or even in back of the lower ones. As a cut flower it is unexcelled.

COW SOAPWORT. *Saponaria vaccaria*.

Another short season bloomer used for cutting or general border planting. Sow at intervals for succession. It is used mainly as a filler.

CHRYSANTHEMUM

H.—2 to 3' P.D.—18"

The Crowndaisy (*Chrysanthemum coronarium*), and annual Chrysanthemum (*Chrysanthemum carinatum*), are surprisingly little grown when one considers their value. Interesting divided foliage, large daisy-like flowers, in yellow or white, often with darker rings in the center, they may be either used for cut flowers or for general garden effect. Given a good soil and plenty of room they seldom fail to give results.

CROWNDAISY. See Chrysanthemum.

CUPFLOWER. *Nierembergia rivularis*.

H.—6" P.D.—6"

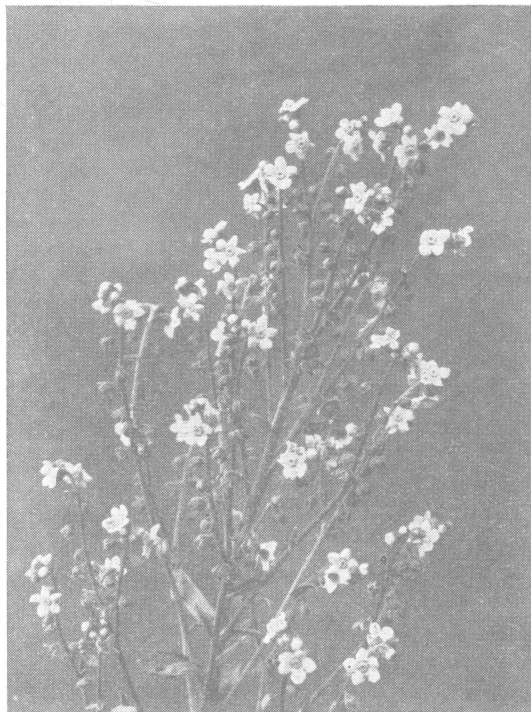
A compact plant covered with a mass of lavender tinted white flowers. Useful as a rock plant or in the front of borders.

CYNOGLOSSUM. See Chinese forget-me-not.

DATURA. *Datura*.

Sometimes called the trumpet flower. It is a rather coarse plant with large flowers; coming in white (*Datura fastuosa*) the white often overcasts with purple, and yellow (*D. chlorantha*) they are grown more as a curiosity than for any actual beauty. It is related to the jimson weed.

DELPHINIUM. See Larkspur.



CYNOGLOSSUM

Blue flowers are always a welcome addition, especially when the blue rivals the sky in its clearness. A companion for marigolds, calliopsis, tasselflower, or rudbeckia. It may be easily forced into bloom in the small home greenhouse.

DIANTHUS. See Pinks.

DIDISCUS. See Laceflower.

DIMORPHOTHECA. See Cape Marigold.

EMILIA. See Tasselflower.

ERYSIMUM. See Blistercress.

ESCHSCHOLTZIA. See California Poppy.

EUPHORBIA. See Painted Spurge and Snow-on-the-Mountain.

EVENING PRIMROSE. *Oenothera*. H.—12 to 36" P.D.—18"

Resembling some of our common weeds, it is doubtful if this group will ever be very popular. The plants are rather coarse, but their brilliant flowers of yellow, rose or white attract some. Difficult to transplant, they should be sown in place in the early spring. They are of little value as cut flowers.

EVERLASTING. *Helipterum*. H.—12" P.D.—6"

Although this name is often applied to any type of flower which may be dried, it is properly applied to *helipterum*, which is usually cataloged under the name of *Acrolinium roseum* and *Rhodanthe manglesi*. Rather small, delicate plants, they are really grown more for their dried flowers than for their garden effect. The best place for them is in rows in the vegetable garden, where they may be cut when in bud and hung up to dry.

Many people consider it best to strip the leaves off all forms of everlastings and strawflowers before drying. Others prefer to leave them on for their decorative effect. See Strawflower, Winged everlasting, Thrift, Honesty, Immortalle and Cockscomb.

FLAX. *Linum grandiflorum coccineum*. H.—12" P.D.—6"

Although the commercial flax with its blue flowers, *Linum usitatissimum*, is sometimes grown, far superior is *L. grandiflorum coccineum*, the scarlet flax, with its brilliant red flowers. It blooms day after day throughout the summer. Several sowings may be made for late summer.

FEVERFEW-CAMOMILE. *Matricaria parthenoides (capensis)*

H.—2 to 3' P.D.—18"

A sturdy, dependable plant bearing a profusion of white flowers. Not especially beautiful but always reliable. It will often live over in protected situations. There is also a dwarf form, with yellow or white flowers.

FOUR O'CLOCKS. *Mirabilis jalapa*. H.—24" P.D.—15"

Although most of us know the four o'clocks as annual hedge plants, they may be used in other ways. Not mixing well with flowers, due to their colors, they should be grown by themselves or as a group in front of the shrubs. The plants self-sow or the heavy roots may be dug in the fall and stored in the cellar over winter.

FORGET-ME-NOT. *Myosotis*. H.—6" P.D.—6"

The annual varieties are as fine as the perennial. If not allowed to seed, the plants will bloom all summer. Partial shade will help during hot dry weather. Grow in masses. Forget-me-nots will often self sow.

GAILLARDIA. *Gaillardia*. H.—12 to 24" P.D.—15"

One of the old standbys necessary to every garden. Easily grown, vigorous and free blooming, it is highly desirable for cutting or garden effect. *G. amblyodon* has single maroon flowers—interesting but not as showy as *G. pulchella*, with its globular heads of yellow, pink, and red.

GILIA. *Gilia*.

G. capitata with its dainty blue flowers is good for relieving the "heavy" effect of such plants as petunias, gaillardias. H.—12" P.D.—8"

G. coronopifolia, a newcomer to most American gardens, gives sturdy accents of red, yellow and pink. H.—36" P.D.—12"

GLOBE AMARANTHE. See Gomphrena.

GODETIA. *Godetia grandiflora*. H.—12" P.D.—12"

A relative of the evening primrose; the commoner form, *G. grandiflora*, forms a dwarf, compact plant bearing a mass of large flowers. Adapted to poor and sandy soil. An all season bloomer. Sow early if possible.

GOLDENCUP. *Hunnemannia fumariaefolia*. H.—18 to 24" P.D.—12"

A relative of the poppy, sometimes called Bush Eschscholtzia. It forms a mass of golden yellow blooms. The plants prefer full sun and will withstand drought. If flowers are cut in the bud they will keep very well.

GOMPHRENA. *Gomphrena globosa*. H.—18" P.D.—12"

Another of our everlastings of easy culture, with white, rose, purple and salmon flowers. It is decorative as a garden plant.

GRASSES (See page 31)

GYPSOPHILA. *Gypsophila elegans*. H.—12" P.D.—6"

The annual babysbreath is useful as a cut flower and temporary garden effect. Its short blooming period of three weeks necessitates resowing every three weeks, but it will bloom six weeks from sowing.

G. muralis is daintier and blooms all summer.

HELIANTHUS. See Sunflower.

HELICHRYSUM. See Strawflower.

HELIPTERUM. See Everlasting.

HOLLYHOCK. *Althea rosea*. H.—5 to 6' P.D.—2'

Similar to the well known perennial form, this stately flower blooms the first year, during late summer. Combined with its perennial sister it will give us hollyhocks all summer long.

HONESTY. *Lunaria biennis*. H.—2 to 3' P.D.—15"

Although uninteresting as a garden subject, it is useful for its seed pods which may have the outer layer removed after they are dried, leaving a thin transparent disk for decorative use in winter bouquets. Seed, unless sown early, will not produce seed pods until the second year.

HORDEUM. See Grasses.

HOUNDSTONGUE. See Chinese forget-me-not.

HUNNEMANIA. See Goldencup.

IBERIS. See Candytuft.

IMMORTELLE. *Xeranthemum annuum*. H.—3' P.D.—12"

A good garden plant and a source of flowers for winter bouquets. Foliage silver-gray, flowers in clusters, purple, lavender, pink and white. Sow seed in April.

IMPATIENS. See Balsam.

IPOMEA. See Morning-glory.

KOCKIA. See Summer-cypress.

JOB'S TEARS. See Grasses.

- LACEFLOWER. *Trachymene (Didiscus)* H.—24" P.D.—12"
 An interesting cut flower, but usually difficult to grow. It is not particularly ornamental as a garden plant but excellent as a cut flower. Difficult to transplant. Sow in pots or where it is to bloom, in early spring.
- LAGURUS. See Grasses.
- LARKSPUR. *Delphinium*. H.—24 to 36" P.D.—12"
 One of the most widely grown annuals. The rocket or hyacinth flowered type, *D. ajacis*, has long compact flowers. The candelabrum type, *D. consolida*, has open, branched flower masses. It may be fall sown; will often self-sow.
- LAVATERA. See Treemallow.
- LAYIA. See Tidy tips.
- LEPTOSIPHON. See Gilia.
- LEPTOSYNE. *Coreopsis stillmani*. H.—12" P.D.—8"
Coreopsis maritima. H.—2' P.D.—12"
 Interesting variations, with yellow flowers, closely resembling calliopsis.
- LIMONIUM. See Thrift.
- LINUM. See Flax.
- LOBELIA. *Lobelia erinus*. H.—6" P.D.—6"
 A low compact plant with brilliant blue flowers. Unfortunately it is often associated only with straight line flower bed edging, whereas it is really charming in mass plantings. The trailing varieties are fine for porch boxes or hanging baskets. Sow seed early.
- LOVE-IN-A-MIST. *Nigella damascena*. H.—8 to 12" P.D.—8"
 A delightful hardy annual flower with finely cut leaves and lacy blue and white flowers. It blooms when very small. May be fall or spring sown or even early summer sown. It is often used to add grace to the flower garden.
- LUNARIA. See Honesty.
- LUPINE. *Lupinus luteus*, *L. hirsutus*, *L. hartwegi*. H.—24 to 36" P.D.—12"
 Interesting as border plants, exquisite as cut flowers. Sow in pots or where they are to bloom. Partial shade will give better results. There are several species, of different colors. Removal of old flowers will increase bloom.
- LYCHNIS. See Rose of Heaven.
- MADAGASCAR PERIWINKLE. *Vinca rosea*. H.—18" P.D.—12"
 One of the best annuals for blooming under trying conditions. They are bushy, compact plants, the seed of which must be sown very early indoors or the plants purchased from a florist. Flowers pink or white.
- MARIGOLDS. *Tagetes*.
 Marigolds in their common forms need no introduction. For tall plants use African Marigold (H.—3'; P.D.—18"), which has large, heavy flowers and is rather stiff and formal. More graceful are the French Marigolds (H.—12 to 18"; P.D.—15"), of compact, free flowering habit. There are many fine varieties of this latter group.
 For a dainty plant, use the Mexican Marigolds, *Tagetes signata pumila*, (H.—15"; P.D.—12"), with small, starry, orange flowers. Hardy, free blooming, easily grown, there are few other annuals so universally satisfying.
- MATHIOLA. See Stocks.
- MATRICARIA. See Feverfew.

MEALYCUP SAGE. See *Salvia*.

MENTZELIA. See *Bartonia*.

MIGNONETTE. *Reseda odorata*.

H.—12" P.D.—8 to 12"

Everyone knows and enjoys the fragrance of this old fashioned flower. Although blooming best during cool weather about May, sowings in partial shade will give midsummer bloom. Difficult to transplant, seed should be sown in pots or where it is to bloom. Liberal fertilization will increase size of flowers.

MIMOSA. See Sensitive Plant.

MIMULUS. See Monkey flower.

MIRABILIS. See Four-o'clock.

MONKEYFLOWER. *Mimulus luteus*, *M. moschatus*.

H.—12" P.D.—12"

Brilliant, curiously shaped flowers preferring partial shade and plenty of moisture. Started indoors or in a cold frame they should be set out after weather warms up. Sometimes used for porch boxes or hanging baskets.

MORNING-GLORY, dwarf. *Ipomea*.

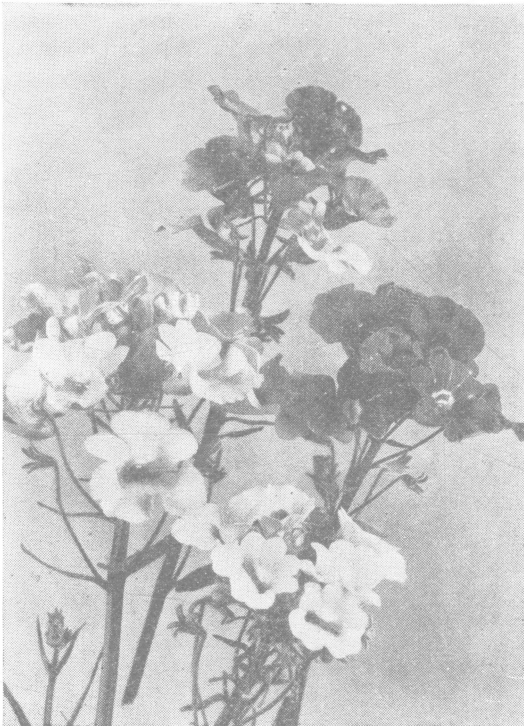
H.—12" P.D.—12"

A very low, compact, free blooming plant, inclined to trail a little. Prefers full sun. Does *not* transplant easily; should be sown in early spring, where it is to bloom.

NASTURTIUM, dwarf. *Tropaeolum*.

H.—12" P.D.—12"

Nasturtiums may be sown where they are to bloom as early as ground can be worked. The plants are sometimes bothered with lice, which can be controlled by spraying (see p. 7).



NEMESIA

In selecting annual flowers a large percentage should be those which will give us a constant supply of bloom throughout the season. The nemesia is one of that satisfactory group. Try a few new flowers each year in your flower borders.

NEMESIA. *Nemesia strumosa*, *N. versicolor*. H.—12" P.D.—8"

A worthy plant, all too little known. The "saucy little faces" of the various colored flowers are borne in profusion from June until frost. Sow seed in April. The large flowered hybrids are most showy.

NEMOPHILA. *Nemophila* H.—8 to 12" P.D.—6 to 8"

Small dainty flowers, preferring partial shade and fairly moist soil. Profuse bloomers throughout the summer. May be used in rock gardens or on shady side of house. Best adapted to cooler climates, and consequently need attention to produce results.

NICOTIANA. *Nicotiana*. H.—2 to 4' P.D.—8 to 12"

The fragrant, evening blooming white flowered *Nicotiana affinis* is by far the commonest flowering tobacco, due possibly to its ability to self-sow. Even more decorative, however, is *N. sanderaei* with pink, red, and lavender flowers. *N. Sylvestris* is a day blooming, white flowered variety.

The nicotianas are desirable for use among the coarser flowers, such as zinnias or even cannas, to give a more airy effect.

NIGELLA. See Love-in-a-mist.

NIEREMBERGIA. See Cupflower.

OENOTHERA. Evening Primrose. *Oenothera*.

O. America—large white flowers. H.—3 to 4' P.D.—18"

O. rosea—pink flowers. H.—2' P.D.—15"

O. drummondii—yellow flowers. H.—12 to 24" P.D.—12"

Large flowered rather coarse plants, demanding full sun. They are showy in the garden but useless for cutting. Do not transplant easily, so seed should be sown early, in open ground.

PAINTED SPURGE. (Mexican Fire Plant) *Euphorbia heterophylla*.

H.—24 to 36" P.D.—18"

An interesting foliage plant; the margins of leaves and sometimes the entire leaves turn scarlet, especially in September. It prefers heat and full sun but will stand rather poor soil. Sow after danger of frost is past.

PANSY. *Viola tricolor*. H.—6" P.D.—6"

Although every one knows the pansy, few grow it in sufficient quantity. Seed best sown in August and wintered with a light mulch of straw, in a shaded cold frame sash. Seed may also be sown in early spring for summer bloom. Buy only the very best fresh seed, even though it seems expensive; old pansy seed is unsatisfactory. Many of the best colors are slowest to germinate and develop. Partial shade and sufficient moisture will give best results, especially for summer bloom. Many people prefer to buy their pansy plants each year rather than to grow their own.

PAPAYER. See Poppy.

PERILLA, PURPLE. *Perilla frutescens nankinensis*. H.—18" P.D.—12"

An old fashioned plant with dark purple leaves resembling the coleus. Used only as a foliage plant, either with flowers such as pink balcony petunias or with gray foliage such as Dusty Miller. Usually self-sows in Ohio, coming up year after year.

PERIWINKLE. See Madagascar Periwinkle.

PETUNIA. *Petunia hybrida* H. 12 to 24" P.D.—8 to 12"

Another of our old faithful friends. Always satisfactory. Seed should be sown early indoors or in a cold frame. The smallest and slowest growing seedlings are often the best colors. The best seed, although costing considerably more, will give the finest flowers.

Small, single flowered forms are the hardiest and most vigorous, but larger flowers are usually preferred. Borders, banks, rock walls, porch boxes, and hanging baskets are some of the possible places to use petunias.

PHACELIA. *Phacelia campanularis*. H.—9" P.D.—6 to 8"

Another blue flower, giving a full season of bloom. It prefers full sunlight and a light soil. Pinch when small to produce bushy plants. Useful for border effects.

PHLOX. *Phlox drummondii*. H.—6 to 12" P.D.—8 to 12"

A continuous bloomer, producing a brilliant mosaic of color when planted in mixtures. Both the dwarf and tall forms are very fine for garden effects and cut flowers. Sow in cold frame, or in open ground in April.

If planted in full sun, and the seedpods removed, the annual phlox will seldom disappoint the gardener.

PINKS. *Dianthus chinensis*. H.—8 to 12" P.D.—6 to 8"

As desirable as its perennial sisters, the several forms of annual pinks come in single and double forms. Constant bloomers, they desire rich soil and sunlight. Plants will live over if mulched and give early bloom, but cannot always be depended upon the second year.

POLYGONUM. See Princesplume.

POPPY. *Papaver*.

Gorgeous flowers in a variety of colors and forms. The Shirley Poppy, *P. rhoeas* (H.—24 to 36"; P.D.—12"), with long slender hairy stems and single or double flowers, is more dainty and graceful than the Opium poppy, *P. somniferum* (H.—18 to 24"; P.D.—8"), with heavy leafy stems and larger flowers. Forms of this are known as the tulip, peony, and carnation flowered poppies.

The very fine seed of poppies should be sown where the plants are to bloom, either fall, spring, or summer. To keep up a supply of bloom do not allow seed pods to develop.

Poppies are excellent cut flowers if cut in the bud stage.

PORTULACA. *Portulaca grandiflora*. H.—6" P.D.—6"

Possessing an ability to grow in hot, dry, almost impossible places, we must respect this brilliant gaudy flower, even if we hesitate to grow it in our borders. Try it in hot, dry spots where nothing else will grow.

PRICKLEPOPPY. *Argemone mexicana*. H.—3' P.D.—18"

Interesting as a foliage plant, with its spiny white-veined leaves; also as a flowering plant. It is a vigorous, hardy plant with yellow flowers, often self-sowing. It is a good filler in any border. Difficult to transplant, it should be sown in its permanent bed.

PRINCESPLUME. *Polygonum orientale*. H.—5 to 6' P.D.—2'

Also called "kiss-me-over-the-garden-gate." A tall, graceful plant with pendulous terminal panicles of pink flowers. May be used as a background for other flowers or as spots of color in the shrub border. Sown early out of doors, it will bloom until frost.

RESEDA. See Mignonette.

RHODANTHE. See Everlasting.

RICINUS. See Castor-bean.

ROSE-OF-HEAVEN. *Lychnis coelirosa* (*Agrostemma*). H.—12" P.D.—6"

A dainty flower which must have several sowings made for succession of bloom. Apt to seed too freely in some gardens.

RUDBECKIA. See Coneflower.

SALPIGLOSSIS. *Salpiglossis sinuata*. H.—2 to 3' P.D.—12"

Highly decorative in the garden or as cut flower. Resembles a refined petunia but with more delicate effects, and more intricate color patterns. Sow seed early, preferably indoors. Pinch seedlings back to produce bushy plants. It will grow in the sun or in partial shade and prefers a sandy soil. Charming flower arrangements may be made with the cut flowers.

SALVIA. *Salvia*. H.—2 to 3' P.D.—18"

Commonest of all is the scarlet sage, *Salvia splendens*, although unfortunately so often misused and overused in our yards and gardens. When grown it should be used with other foliage as a background and in rela-

OPIUM POPPY

The Opium Poppy, together with the other poppies, will do their share in any garden if we will but sow them in a sunny spot where they may grow and bloom. They do not like to be disturbed by transplanting.



tively small masses. Sow seed early indoors or in cold frame and plant out after last frost.

Mealycup Sage, *S. farinacea* also usually listed as a perennial, is a free blooming, attractive plant worthy of wider use. Its blue flowers and gray stems make it useful as a cut flower or as garden subject. Often self-sows profusely and never fails to give satisfaction.

Blue Sage.—*Salvia patens*, a brilliant blue, which will be welcomed to most gardens. Not as showy as the Scarlet Sage, it is far more suitable for garden use.

SANVITALIA. *Sanvitalia procumbens*.

H.—6" P.D.—8 to 12"

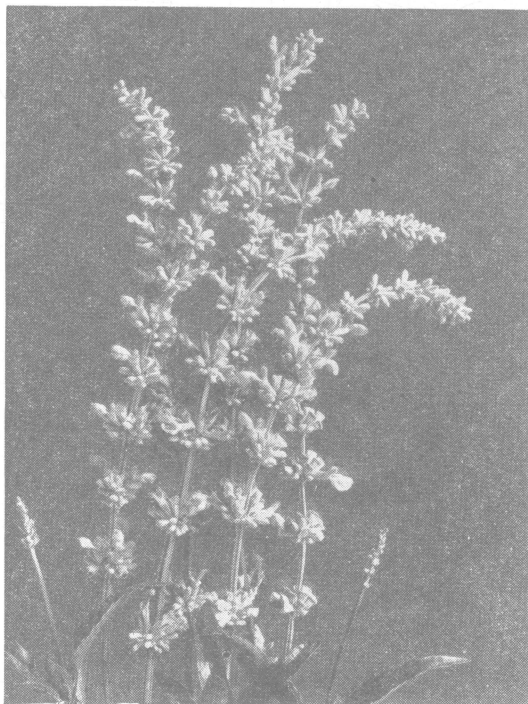
A very satisfactory ground cover and edging plant, it is surprising that it is not grown more extensively. The golden yellow flowers with dark centers resemble small zinnias, and are borne in profusion until frost. Sow seed in early spring. Try a few in the rock garden.

SAPONARIA. See Cow soapwort.

SCABIOSA. *Scabiosa atropurpurea*

H.—24" P.D.—12"

One of our best annual cut flowers. The wide range of colors—white, pink, rose, scarlet, yellow, blue, and maroon—may either be grown as single colors or in mixture. Sow seed indoors or out, give sufficient room and fertilizer and they will bloom until frost if we but keep the old flowers picked.



SALVIA

The Mealy Cup Sage is a welcome relief from its gaudy relation, the Scarlet Sage.

Many annuals, such as this one, are ready to seed themselves from year to year if we but give them a chance. Do not spade the annual flower border until the spring crop of seedlings has had a chance to develop.

SCARLET SAGE. See *Salvia*.

SCHIZANTHUS. See Butterflyflower.

SNAPDRAGON. *Antirrhinum majus*. H.—12 to 36" P.D.—8 to 12"

The variety of colors, the differences in height of dwarf, medium, and tall, and the long season of bloom, make these charming flowers beloved by all. Use either as border plants, or in rows for cutting.

The very small seed is best sown early but may be sown outdoors in May for later bloom. Snapdragon rust may be a serious handicap in some sections. Destroy any snapdragon plants which have lived over winter and allow no old leaves or stems to remain. This sanitary precaution, together with a sulfur dust, will help to check the rust.

SENSITIVE PLANT. *Mimosa pudica*. H.—8 to 12" P.D.—12"

An odd plant, grown not for its beauty but for its sensitive leaves which slowly fold together when disturbed. Sow seed indoors and set out in hot dry place after all danger of frost is past.

SNOW-ON-THE-MOUNTAIN. *Euphorbia marginata*. H.—3' P.D.—12"

An old fashioned flower which has escaped and become a pest in some gardens. The upper leaves, margined with white make a showy effect. A few in the border give an interesting effect. May easily be naturalized and will hold its own.

SPIDERFLOWER. *Cleome spinosa*. H.—3 to 4' P.D.—12"

A vigorous, rather coarse plant, well adapted to poor soil, and useful as an accent among the shrubs or a filler in an odd corner of the yard. Plants have a peculiar odor—objectionable near windows or porches.

Flowers are lavender, pink, or white. In a small garden a few plants will suffice. Sow seed in early spring. You may find it will self-sow.

SQUIRRELTAIL. See Grasses.

STATICE. See Thrift.

STOCKS. *Mathiola incana*. H.—12 to 18" P.D.—12"

Although stocks prefer a cool, moist climate with a rich soil, they often do well in Ohio gardens. Sow some seed early and some later for continuous garden effect.

Stocks come in several forms, dwarf and tall, and a variety of colors. Some strains seem to bloom better than others in our warm dry summers.

The sweet scented stocks, *Mathiola bicornis*, is a more graceful, less showy, but highly desirable form.

STRAW FLOWERS. *Helichrysum bracteatum*. H.—3' P.D.—12"

This name is properly applied only to the *Helichrysum*, although often loosely to any flower which may be successfully dried. The *Helichrysum* is the largest and most showy of the everlasting. Start the plants early indoors or in the cold frame if possible, and give them plenty of space to grow.

Remember to cut the flowers before they are open—since small buds will open when dried. Tie in bunches and hang up until dry.

SUMMER-CYPRESS. *Kochia tricophylla* H.—24" P.D.—18 to 24"

Whether we like it or not, the summer cypress demands admiration for its ability to grow under most trying conditions, produce its formal light green bushes, turn brilliant red in the fall and then self-sow most profusely. Once you grow it you will always have it.

SUMMER-FIR. *Artemisia sacrorum viridis*. H.—3' P.D.—18 to 24"

An interesting foliage plant for background effects or temporary hedges. Leaves finely cut, delicate green. It will sometimes self-sow.

SUNFLOWER. *Helianthus*. H.—3 to 7' P.D.—2 to 3'.

The annual sunflowers are an interesting group of plants giving a variety of flowers both in size, form, and color. The red flowered forms seem to appeal to many gardeners.

The larger forms are rather coarse, but the lower growing varieties with small flowers harmonize with zinnias and cosmos. Useful as a background for other annuals or as color accents among shrubs. If started early indoors many will go to seed and die before frost. The seed makes excellent bird food.

SWAN-RIVER-DAISY. *Brachycome iberidifolia*. H.—6 to 12" P.D.—6 to 8"

A dainty dwarf plant with blue, white, or mauve daisy-like flowers. Often used in rock gardens. It prefers full sun but unless liberally watered does better in partial shade during hot weather.

SWEET ALYSSUM. *Alyssum maritimum*. H.—8" P.D.—12"

Everyone knows and grows this sweet scented flower, but all too many seem to feel it must be grown in straight rows along the edge of beds. It is really more effective in masses in informal beds.

Hardy, it may be sown very early and will bloom in six weeks from sowing. There are many varieties, some slightly colored, some compact, others trailing. They all bloom from early summer until they freeze up in October.

SWEET SCABIOSUS. See Scabiosa.

SWEET SULTAN. *Centaurea moschata*. H.—2' P.D.—12"

Showy flowers and decorative plants preferring non-acid soil. Flowers will last well if cut when in bud. It will bloom from June till frost.

There is also the Royal Sweet Sultan, *Centaurea imperialis* H.—2'; P.D.—12"), the flowers are sweet scented, lasting well as cut flowers. It is an enlarged form of the Sweet Sultan, and preferred by many.

SWEET PEAS. *Lathyrus odoratus*. H.—5 to 8' P.D.—3'

The sweet pea is distinctly a cool season crop and to be grown well in Ohio requires care and attention. Preferring a cool deep soil, the ground should be thoroughly prepared in the autumn by digging a trench 2 feet deep. Place several layers of manure in the bottom and fill in with the best soil or compost available. Mound well to take care of settling.

Sowing seed:—If soil is well drained, seed (especially of dark seeded varieties) may be sown in late November, but otherwise during early spring. The old rule of Good Friday is not as far off as most of the old garden myths, for it insures early sowing.

It is not necessary to sow the seed in a trench and fill it in, as some people aver, as sweet peas need little attention, if the soil has been properly prepared.

Supports:—A support of string or wire should be ready for the seedlings as soon as they start to climb. It is neater than brush.

Summer blooming will be obtained in most sections only by liberal weekly watering, together with a mulch of straw, leaves, or peat moss. Monthly applications of a complete chemical fertilizer, 2 pounds to 100 square feet of soil, should be added.

Keep all old flowers picked. To control the red spider which so often ruins the vines, spray daily with a garden hose or dust with sulfur every two weeks.

TAGETES. See Marigold.

TASSELFLOWER. *Emilia (Cacalia) flammea*.

The tasselflower, although dainty and far from showy, always attracts attention. Its feathery tufts of orange or yellow give a charming and unique effect. Combined with ageratum or browalia it is stunning. It may be used in the rock garden, the border, or as a cut flower.

THRIFT. (Statice) *Limonium*.

Although always cataloged as Statice, this should be called Thrift; the scientific name is *Limonium*, instead of Statice. It is considered by many as the choicest of the everlastings. *Limonium sinuata* with its open airy sprays of flowers, comes in white, pink, and lavender. *L. bonduelli* resembles *L. sinuata* except that the flowers are yellow. *L. suworowi* produces gorgeous pink spikes. All of these flowers are equally effective in the garden, as freshly cut flowers, or as dried winter bouquets.

Seed is best sown early, and if pot grown will start blooming surprisingly soon. Staking may be necessary unless the plants are protected from the wind. They prefer sandy soil.

TIDYTIPS. *Layia elegans*

H.—18" P.D.—12"

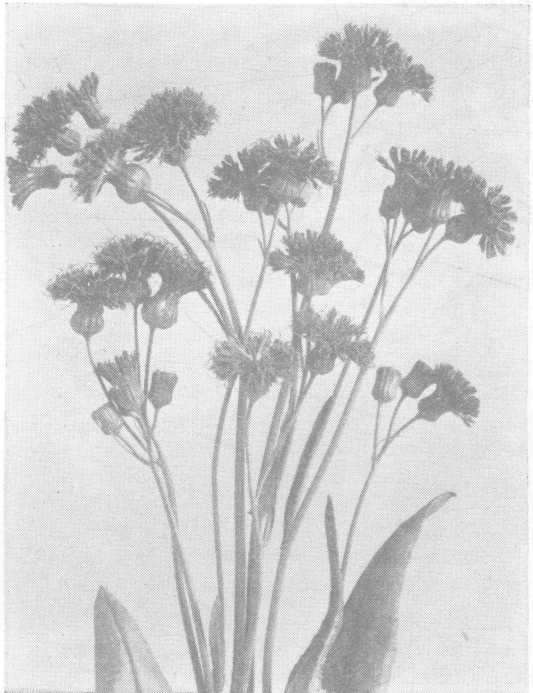
Resembling a gaillardia, these flowers are seldom seen although relatively easy to obtain. Grow in full sun and pinch when small to produce branching. They will amply reward us for their care.

TOBACCO.—See *Nicotiana*.

TASSELFLOWER

Unusual colors are always being sought, and here is one of the finest.

Many annuals may be used as temporary rock garden plants. Some gardeners even use them regularly for summer effects in the rock garden.



TORCHLILY. *Kniphofia*. (*Tritoma*) H.—2' P.D.—12"

Although we all enjoy the perennial Torchlily, but few try the annual form; it is not as showy but is worth trying. Sow seed early indoors, even though they do not bloom until August.

TORENIA. *Torenia fournieri*.

A low compact plant producing a constant mass of flowers until frost. The lavender flowers with intricate markings of white and yellow are interesting in themselves. It is suitable for use in the border or as a pot plant.

Sow seed indoors or in cold frame in March. Do not set plants out until weather is warm.

TRACHYMENE. See Laceflower.

TREEMALLOW. *Lavatera trimestris*. H.—2 to 3' P.D.—12"

Resembling a hollyhock, these rather coarse annuals are effective. May be used for accent in the border, for color among the shrubs, or as a bold mass of color by themselves.

Seed best sown where they are to bloom, but well thinned and spaced 18" to 24" apart. Abundant moisture and plenty of sun are their preference.

TRITOMA. See Torchlily.

TROPAEOLUM. See Nasturtium.

VERBENA. *Verbena*. H.—8 to 12" P.D.—12"

We all know and enjoy the common type of verbena with its brilliant flowers, especially in the newer, large flowered types. These are fine for border effects or cutting.

The moss verbena (*V. erinoides*) although not as showy, has excellent foliage and fern like leaves. Ideal for a ground cover.

The tuber verbena (*V. venosa*) is coarser and more compact, but equally fine for foliage effect. Its lavender flowers add to its decorative value.

VINCA. See Madagascar Periwinkle.

VIOLA. See Pansy.

VIRGINIA STOCK. *Malcomia maritima*. H.—6 to 8" P.D.—8"

Not as showy as the common stock, but more delicate in appearance. Often used for rock gardens as well as borders. Seed may be fall or spring sown. In fact, it will often self-sow.

WINGED EVERLASTING. *Ammobium alatum*. H.—18" P.D.—8"

A satisfactory everlasting having white flowers with yellow centers. More interesting as a cut flower than as a garden subject. Prefers a sandy soil.

WOODRUFF. *Asperula orientalis azurea*. H.—12" P.D.—6"

Although many know the perennial sweet woodruff, few grow the oriental woodruff (*Asperula orientalis azurea*). A splendid airy effect is obtained with its blue flowers, which tend to relieve the heaviness of coarser flowers.

XERANTHEMUM. See Immortelle.

ZINNIA. (Youth and Old Age) *Zinnia*.

At least no one need be ashamed to profess a liking for zinnias. There are a number of forms and varieties some of which are neglected, such as:

Z. mexicana, (H.—12 to 18"; P.D.—12"), a dwarf, small flowered type, with both single and double flowers. Its smaller size enables us to use it where other varieties might prove too coarse.

Z. pumila (H.—18"; P.D.—12"), with its compact growth, is more or less a miniature of the giant ones. It is more suitable for cut flowers for small bowls and baskets.

The giant zinnias (H.—3 to 4'; P.D.—2'), Dahlia, California Giant, and Colossal Flowered types, are all glorious forms. There are also Quilled and Picottee types.

To secure the best results with zinnias, the very best strains of seed are recommended. The cheaper strains, although producing good flowers, will not give the large size or wide range of unusual colors as will the more expensive seed.

GRASSES

The various grasses tend to give an airiness, a lightness and daintiness to the garden. They tend to relieve the heaviness of the coarser annuals, besides serving as excellent material for winter bouquets. Sow all grass seed as early as possible in March or April.

BROME GRASS.—*Bromus brizaeformis*. H.—2' P.D.—12"

Resembles quaking grass with its large drooping panicles.

CLOUD GRASS. *Agrostis nebulosa*. H.—18" P.D.—12"

A fine hairlike grass giving a misty effect.

FOUNTAIN GRASS. *Pennisetum*. H.—3 to 5' P.D.—18 to 24"

There are several species of fountain grass with various colored foliage and flowers, green and white, green and purple and bronze.

JOB'S TEARS. *Coix lachryma*. H.—2 to 3' P.D.—18"

A coarse grass with large pearly seeds often strung for children's necklaces. Not especially decorative.

QUAKING GRASS. *Briza maxima*

RABBITTAIL GRASS. *Lagurus ovatus*. H.—12 to 18." P.D.—12"

White downy tufts. Fine for drying.

SQUIRRELTAIL GRASS. *Hordeum jubatum*. H.—2 to 3.' P.D.—12 to 18"

Short, feathery heads of bloom.

VINES

It is safe to say that every home and garden is in need of a few more vines for one purpose or another. Although under many conditions we will want to use a perennial vine, in others a temporary one will meet our needs.

Often we find an annual vine will give us just the effect we want, where the perennial or woody forms will not.

Sow the seeds of all vines where they are to grow or else in pots so that they will transplant easily.

BALLOONVINE. *Cardiospermum halicacabum*. H.—8 to 10' P.D.—12"

Small white flowers, balloon like seed pods. Prefers a warm situation.

BALSAM-APPLE. *Momordica balsamina*. H.—15 to 20' P.D.—12"

A handsome vine with good foliage and warty, apple-shaped fruits which expose a brilliant carmine interior when ripe.

BALSAM-PEAR. *Momordica charantia*. H.—10' P.D.—12"

Resembles the balsam apple, but has pear shaped fruit.

CANARY NASTURTIUM. *Tropaeolum peregrinum*. H.—15' P.D.—8 to 12"
A dainty vine with finely cut leaves and sprays of small yellow flowers. Resembles its relative, the Nasturtium, except that it is much daintier.

CARDINAL CLIMBER. *Quamoclit coccinea*. H.—10 to 20'. P.D.—12"
A striking vine with bright red flowers, resembling a miniature morning glory. It will blossom all season.

CUP AND SAUCER VINE. *Cobaea scandens*. H.—30' P.D.—5"
One of the most rapid growing vines, which is a perennial farther south. Large bell shaped pink and purple flowers, plum shaped fruits. Seeds germinate best if planted edgewise rather than flat.

CYPRESSVINE. *Quamoclit pinnata*. H.—15 to 20' P.D.—12"
A delightful, charming vine, very finely cut leaves, and large number of small starry flowers in orange, scarlet, or white. Prefers sunny location. May be used for small trellis, posts, or other places where a small vine is desired.

GOURD. *Cucurbita*. H.—8 to 20' P.D.—24"
The gourds are grown more for their curiously shaped fruits, which may be dried, than for any beauty they possess.

HYACINTH-BEAN. *Dolichos lablab*. H.—15' P.D.—12"
A rapid growing vine with good foliage and profusion of flowers. Daylight, white. Darkness, purple.

MORNING-GLORY. *Convolvulus* and *Ipomea*. H.—15 to 25' P.D.—12"
This group of plants is much maligned because of weedy tendencies of some of its members. Some belong to genus *Convolvulus* and others to *Ipomea*. It is well to avoid the common morning glory, since it soon seeds and becomes a pest.

The Japanese morning glory prefers a warm, sheltered location. The Mexican morning glory, with its evening blooms of white and pink, and the true Moonflower, *Calyponction aculeatum*, (*Ipomea bona-nox*) give evening charm in the garden. But finest of all is the Heavenly Blue morning glory, with its huge, pale blue flowers.

NASTURTIUM. *Tropaeolum majus*, and *T. lobbianum*. H.—8 to 15' P.D.—12"
The climbing form, although gaudy, may often be used. The Lobb nasturtium usually has the best colors. Plant lice, which often attack it, are easily controlled, (see page 7).

SCARLET RUNNER BEAN. *Phaseolus multiflorus*. H.—8 to 12' P.D.—12 to 18"
A mass of brilliant scarlet flowers. Showy, attractive, easily grown.

THUNBERGLIA. *Thunbergia alata*. H.—3 to 5' P.D.—8 to 12"
A really charming little vine for rock gardens, porch boxes or hanging baskets. Covered with numerous white or orange flowers with dark throats, it never fails to attract attention. Best to sow seed early in the cold frame or indoors.

WILD CUCUMBERS. *Echinocystis lobata*. H.—10 to 25'. P.D. 18 to 24"
A rank growing weed which soon becomes a pest. It is of doubtful value for gardens. Once it goes to seed it will come up for years. Use only in waste places.